ADDENDUM

Five-Year Review Report

for

Brookhaven National Laboratory Superfund Site
Town of Brookhaven, Hamlet of Upton
Suffolk County, New York

December 2021

PREPARED FOR:
The United States Department of Energy
Office of Science

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This addendum has been prepared to address regulatory comments on the Five-Year Review Report for Brookhaven National Laboratory Superfund Site, Town of Brookhaven, Hamlet of Upton, Suffolk County, New York, dated June 1, 2021.

On August 6, 2021, the United Sates Environmental Protection Agency (USEPA) documented the overall protectiveness for the site by Operable Unit (OU) (see attached letter from P. Evangelista to R. Gordon). It was agreed that any comments from the regulators on this Report would be responded to and any issues clarified and documented separately. Since none of the comments altered the protectiveness determinations, USEPA accepted the June 2, 2021 Report as written. Comment letters were received from the following regulatory organizations:

- New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH), letter from B. Jankauskas to R. Gordon, dated August 4, 2021.
- Suffolk County Department of Health Services (SCDHS), letter from J. Wanlass to R. Gordon, dated August 20, 2021.
- United Sates Environmental Protection Agency (USEPA), email from S. Hartzell to R. Howe, dated October 7, 2021.
- New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH), letter from B. Jankauskas to R. Gordon, dated October 26, 2021.

The responses to regulatory comments were reviewed by the regulators and found acceptable as documented via the following letters from the regulators: [Pending regulator review of the responses]

The responses are included in this Addendum, as well as copies of the letters identified above.

Comment Number	Section/ Page	Comment	Response
NYSDEC Letter from B. Jankauskas to R. Gordon, dated August 4, 2021.			
The New York State Department of Environmental Conservation and the New York State Department of Health (Departments) have reviewed the 5-Year Review Report, dated June 1, 2021. The Departments provide the enclosed comments.			
1	Glossary	Include milestone, which is presented in various parts of the document. Most milestones are anticipated to be completed in the future, but some have past (e.g., ES stack and building 650 and Table 5-1 WSB and deeds). Table 9-1 has identified future milestones to be achieved.	The definition of milestone will be added to the glossary in future Five Year Reviews. It is a date when a significant point in a project is expected to occur. In most cases, it occurs in the future. However, Table 5-1 is a copy of the recommendations from the previous 2016 Five Year Review, and provides a status of whether those milestones were met.
2	Glossary	Operable Unit definition needs to be updated to include total number of Operable Units	Agreed, this will be updated in future Five Year Reviews.
3	Operable Unit Numbers	On May 11, 2021, BNL responded to a request to adjust Operable Unit numbers so they are the same with EPA and the State. At this time EPA has revised their Operable Unit numbers. This document should utilize the updated Operable Unit numbers.	Future Five Year Reviews will reflect the proposed OU designations in the attached Crosswalk. EPA will need to change their designations for three OUs based on the Crosswalk.
4	Private Wells	This document discusses the private wells that are sampled as part of the current monitoring program in multiple locations (e.g., pages 11, 14, 26, 63, 74, 77, 79). The discussion provided appears to imply that BNL is sampling the only private wells present within the area. Based on the recent private well sampling activities conducted near BNL, there are more private wells in the hook-up area than these private wells. This	Future Five Year Reviews will only include those properties still on private wells that declined DOE's original public water hook-up offer in 1996 to 1998. Two properties with private wells were connected to public water in 2017

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		discussion should be revised for clarity and a discussion regarding some of the findings from the expanded private wells sampling should be included to indicate that this exposure pathway was evaluated particularly for 1,4 dioxane, which has been detected in the offsite groundwater and passes through the treatment systems.	and 2019 and are no longer part of this program. Currently there are four properties with five private wells sampled annually. Of the 75 other properties sampled during the recent SCDHS/BNL cooperative private well testing program, two of the properties (#18 and #117) are located within the hook-up area. Neither PFOS, PFOA, or 1,4-dioxane were detected in the sample from property #18, whereas a trace level of PFOA was detected in the sample from property #117. Also see additional response below to Comment 1 from the NYSDEC's 10/26/21 letter.
5	Page 26[28], second paragraph	Indicates that 26 extraction wells are in operation, but Figure 4-1 shows 23 extraction wells. Verify/revise accordingly.	The text is correct, 26 extraction wells were operating in 2020. Figure 4-1 shows 24 extraction wells either in full time operation or pulsed pumping. Note that WSB extraction wells WSB-5 and WSB-6 only show one dot at this scale. Figure 4-1 should have included Airport extraction well RTW-2A and Building 96 RTW-2 as operating.

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6	Page 32, OUV	Two localized areas of contamination remain in the Peconic River (PR-SS-38 and PR-SS-10) that contain mercury above the sediment cleanup goal indicated in the Record of Decision but was determined to be acceptable. Recently the DEC agreed that water and sediment sampling is no longer necessary, but continued fish sampling is necessary as fish concentrations have not reduced to acceptable levels.	Noted. To clarify, the ROD does not identify any "acceptable levels" of mercury in fish. As noted in Section 7.5 of the Five Year Review, BNL has completed the CERCLA post-cleanup monitoring of the River. However, under the BNL Environmental Surveillance Program, as river conditions and fish population/size allow, BNL will sample fish for mercury and PCBs in on-site portions of the Peconic River.
7	Page 47, WSB	Verify reference to 111-15 as Figure 6-6 shows results for 103-15, but the results are greater than five parts per billion for TVOC.	The reference to well 111-15 is correct, however it is not shown on Figure 6-6 trend graph. It will be added for future reports.
8	Page 49, BGRR	Indicates new well at leading edge of BRGG SR-90 plume was installed in September 2020 but is not shown on Figure 6-14. Update Figure 6-14 to show new monitoring well.	Agreed. The figure will be updated in future Five Year Reviews to include new sentinel well 095-326.
9	Page 75, OUV Monitoring	Should include fish monitoring/surveillance activities as these were performed.	Agreed. In 2018 and 2020, fish population assessments were conducted by BNL that determined sufficient fish were not available to support sampling. This is discussed in Section 6.4.5 and will also be included in this section in Future Five Year Reviews.

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10	Section 10, OUII/OUVII	Suggest including a protectiveness statement for these OUs even if the activity was covered under a separate Record of Decision.	According to EPA, OU II/VII does not have its own protectiveness statement because the remedial action for this OU is covered under the OU I, OU III, and g2/BLIP/ USTs RODs.
11	Table 9-1	Include fish monitoring as discussed on Page 75 (Monitoring Optimization).	Annual fish population assessments/monitoring under the site Environmental Surveillance Program will be included under the recommendation table in future Five Year Reviews.
12	Figure 4-1	Verify operational status of Industrial Park extraction wells as each extraction well is in standby conditions but identified as operating.	The Industrial Park extraction wells are in a standby, but operationally-ready mode. A Petition for Closure has not yet been submitted. Figure 4-1 reflects that.

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SCDHS Letter from J. Wanlass (SCDHS) to R. Gordon (BHSO), dated August 20, 2021.			
I have reviewed the Brookhaven National Laboratory Five-Year Review Report and offer the following comments.			
1	Operable Unit VIII	Recent sampling has shown MCL exceedances of Per- and Polyfluoroalkyl Substances (PFAS) and 1-4 Dioxane. In light of this the Suffolk County Department of Health Services (SCDHS) recommends a comprehensive sampling plan in order to adequately characterize the extent of contamination. This comprehensive plan will allow for better protection of human health and the environment.	Agreed. Since 2017 BNL has proactively taken important steps in understanding the extent of PFOS, PFOA and 1,4-dioxane contamination. Prior to the addition of these compounds as Areas of Concern under the CERCLA Federal Facilities Agreement, BNL and DOE have secured different sources of funds to perform several phases of monitoring and characterization efforts, as well as construction of groundwater treatment systems for two PFAS source area plumes. These characterization and remediation efforts will significantly reduce the scope of the remaining Remedial Investigation work. As discussed during the monthly IAG teleconferences, BNL and DOE have been actively planning the preparation of the RI/FS Work Plan and subsequent characterization activities for the recently designated Operable Unit VIII.

Comment Number	**Section/ Page**	**Comment**	**Response**
2	Private Well Program	Recent sampling activities have highlighted additional private wells with in the BNL hook-up area. SCDHS recommends the private well program narrative be revised and talk about the newly identified private wells and any possible exposure these new properties might encounter.	See response to NYSDEC/NYSDOH Comment 4.

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USEPA Email Comments from S. Hartzell (USEPA) to R. Howe (BSA), dated October 7, 2021.			
EPA issued our Protectiveness Statement on August 6th and are following up with these comments on the document. None of the comments should impact the overall protectiveness statements as identified in our Protectiveness Letter and are intended for clarification, to be addressed in an addendum to the Five Year Review document. As noted in our protectiveness letter, the remedies deemed protective are effective for the contaminants in the ROD, but there are new contaminants present (PFAS, 1,4-dioxane) that are being addressed under a different administrative unit (OU VIII). The presence of the new contaminants does not affect short term protectiveness because of the presence of LUCs are preventing human contact. EPA will continue to evaluate protectiveness as these new contaminants have the potential to impact groundwater within other OUs.			
General Comments			
1	Protectiveness Statements	EPA refers BNL to our guidance on protectiveness statements, *Clarifying the Use of Protectiveness Determinations for Comprehensive Environmental Response, Compensation and Liability Act Five-Year Reviews (OSWER 9200.2-111)*. "Expected to be protective" is usually reserved for sites that are in construction. If they are not in construction, then protective or short-term protective are typically used when there are not significant issues. Sites where institutional controls are not in place, nature and extent has not been defined or additional remedial work needs to happen in the future should generally be considered protective in the short term. EPA considers that because the exposure pathways have been cut off the remedies are protective in the short term. Furthermore, as continued monitoring demonstrates that the remedial goals will be achieved and a remedy gets implemented for OUVIII (PFAS and 1,4-dioxane) it will be protective in the long term. A comprehensive protectiveness statement is not appropriate at this time, because the entire site is not construction complete.	Comment noted.

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2	Due Date	The trigger for this Five Year Review is the date on which EPA signed the last protectiveness letter (8/9/2016) and the next one would be five years from the date we issue our protectiveness letter (8/6/2021), not necessarily when the FYR is issued.	The Five Year Review Summary Form has a trigger date of 8/9/16 and the due date of 8/9/21. The next Five Year review is due 8/6/26 (five years from EPA's 2021 protectiveness letter).
3	Receptors of Concern	In general, the document does not describe the exposures to specific receptors of concern e.g., indoor worker, outdoor worker, future resident, off-site resident, etc. It would be helpful to include some information on the receptors and how exposures to these individuals were considered in the assessment. A table identifying the specific OU and the receptors would be helpful.	A table that identifies the OUs and receptors will be considered for inclusion in the next Five Year Review.
4	Lead	The document cites the Regional Screening Levels as the basis for a lead level in soil of 400 mg/kg (page 70, and other descriptions on pages 73 and 89 and memo description on page 248) EPA is currently updating the soil lead level as indicated in the document. It is recommended that the text remove reference to the Regional Screening Levels since these are not regulatory levels. EPA recommends including the following language in Question B regarding lead that outlines current evaluations of lead at Superfund sites and recommends language regarding updates in the next 5 Year review be maintained in the text. A link to the language in Attachment 5 regarding the scientific basis for lead would also be helpful. **New Language**: At the time of the ROD, risks associated with exposure to lead in soils were evaluated using a target blood lead level (BLL) of 10 micrograms per deciliter (µg/dL). However, recent toxicological evidence suggests that adverse health effects are associated with lower blood	Future five Year Reviews will incorporate the new language on revised lead screening levels. Also, for those OUs where lead was a COC, there will be a discussion of how the cleanup is still protective considering these lower screening levels.

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		lead levels. To achieve a lead risk reduction goal consistent with recent toxicological findings, EPA Region 2 currently evaluates lead using a target blood lead level of 5 µg/dL, which equates to 200 mg/kg screening level using standard default inputs to the Integrated Exposure Uptake Biokinetic (IEUBK) model to assess exposures to young children. For sites where lead was a COC, there should be a discussion of how the cleanup is still protective considering these lower values. Additionally, for risk evaluations planned for sites to remove LUCs, an evaluation of the data will be needed to ensure that lead would not pose and unacceptable risk if LUCs were removed. Lead will be re-evaluated in future FYRs based on updated toxicity information.	
5	PFAS	OU VIII should not be included in the technical assessment (Qs A&B). There is no ROD or remedy to evaluate for protectiveness. It can be included in future FYRs once the NTCRA has been implemented. However, the other portions of the document that address PFAS are well constructed. EPA suggests more information about impacts beyond BNL property line so it is clear that off-site residential wells are not impacted.	Comment noted.
6	1,4-Dioxane	For 1,4-dioxane, please include a brief description of what might be needed to complete the investigation for this contaminant.	The scope of the investigation to further characterize the nature and extent of 1,4-dioxane contamination in groundwater will be identified in the RI Work Plan.
7	Radiological	Has the Region done Radiological consultations with FFRRO, OSRTI or internal to the Region on this site?	This comment appears to be internal to EPA.

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8	Restoring the aquifer to beneficial use	This should be noted as an RAO in the Decision Documents, but achieving the cleanup goals that were appropriately established for each OU will achieve this.	The remedial action objectives in the RODs cannot be changed.
9	OU 1 Plume	Has the vapor intrusion pathway been investigated (or is there a reason why it would not be of concern) at this operable unit?	Yes, it has been investigated and is addressed in Section 7.1, the last bullet on page 60, in response to Question B.
10	OU 3 plume	When the system modification occurred to address other contaminants, was an ESD or RODA completed for the site. Was VI considered at this OU?	As noted in Section 4.1 page 19, an Explanation of Significant Differences to the OU III ROD was completed to address Freon-11. As noted in Section 4.2 page 25, several modifications were made to OU III treatment systems between 2007 and 2020 that included the installation of additional extraction wells. Design modifications for these changes to the systems were submitted to USEPA. Yes, vapor intrusion has been investigated and is addressed in Section 7.2, the last bullet on page 70, in response to Question B.
11	Peconic River Fish Tissue	Sediment and surface water samples are below the cleanup values, but the fish tissue could not be sampled due to a low amount of fish collected to perform the analysis. Does BNL plan to attempt fish tissue sampling in the future?	As discussed in previous Five Year Review Reports, from 2006 through 2015 BNL has performed significant fish sampling/tissue analyses for mercury and other COCs since the initial sediment

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			cleanup in 2004/2005. As noted in Section 7.5 page 75, in response to a NYSDEC request, as river conditions and fish population surveys allow, BNL will sample fish (filets and small whole fish) in the on-site portion of the Peconic River for mercury, PCBs and radionuclides.
12	Ecological Risk	Have tiger salamanders been seen in the Wooded Wetlands or elsewhere on the BNL site?	Yes. As discussed in Section 6.4.1 page 44, tiger salamanders have been identified in the Wooded Wetlands. Egg mass surveys based on presence of water are performed annually. BNL manages the on-site tiger salamander population and habitat in accordance with the Tiger Salamander Habitat Management Plan which is Appendix A of BNLs Natural Resource Management Plan.
Specific Comments			
13	Page ii	The document states that sitewide protectiveness must be reserved until all HFBR work is complete. However, short term protective status may be achievable prior to that.	Comment noted.
14	Page iii, OU VIII PFAS	EPA notes that no one on or offsite has been found to be drinking water above the 70ppt level, so protectiveness is not affected for the present.	This will be incorporated into the next Five Year Review, as appropriate.

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15	Section 1 – Introduction	Suggestion to link to EPA's webpage regarding the site (https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.docdata&id=0202841)	The link will be added to future Five Year Review Reports.
16	Section 2 –Table 2-1	It would be helpful to provide a link to the general homepage for BNL where documents are available listed above.	Agreed. The link https://www.bnl.gov/gpg/reports.php will be added to future Five Year Review Reports.
17	Page 8, Table 2-2	For TCRA, it is clearer to say "In Design" than "in Remedial Design" since it is not technically a remediation.	Agreed. It is a removal action so the change will be reflected in future Five Year Review Reports.
18	Page 9, Table 2-2	Stack is almost complete, not complete	Comment noted.
19	Page 10, Sect. 3.3:	The document may benefit from including a discussion of BNL's location relative to the Pine Barrens or discussion of natural vegetation types present at BNL.	The next Five Year Review will include brief discussion on the vegetation on the BNL site and its location relative to the larger Central Pine Barrens.
20	Page 11, LUCMP	Has there been a LUCMP update since 2018? EPA received a LUIC evaluation document in February 2021.	Actually, the most recent LUCMP was in 2013, not 2018 as referenced. The next Five Year Review Report will contain the correct reference. The Plan is scheduled to be updated in 2022. LUIC evaluations are prepared and submitted to the regulators annually, with the most recent in February 2021.

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21	Page 13, OUI Groundwater	Clarify whether VOC contamination has migrated beyond the OU boundary or the BNL boundary.	VOC contamination has migrated beyond the BNL boundary.
22	Page 15	The summary under OU VIII indicates that the source of PFAS is AFFF use. Is this the only source? Were other potential sources identified and evaluated? Please add a brief description of the scope of the PFAS investigation and the justification. In addition, if there are potentially other sources of PFAS, please comment, or explain prioritization decisions leading to the focus on AFFF.	A comprehensive search of available records, documents and interviews with long-term current and former employees identified eight areas where firefighting foam had been released to the ground during the period of 1966 through 2008. During 2019-2020, BNL conducted a comprehensive sampling of 360 on-site and off-site monitoring wells and groundwater treatment systems. In addition to detecting PFAS at each of the eight documented foam release sites, low levels of PFAS were also detected in several wells monitoring the Current Landfill. At this time, it is unclear whether the PFAS originated from AFFF or from other PFAS-containing products that were disposed of at the landfill. A brief description of the scope of the PFAS investigations is provided in the Data Review Section 6.4.7.
23	Page 26 – USTs	Suggest providing additional language regarding why no additional remedial actions are needed for the USTs.	The following language will be added to future reports: The former USTs were removed from the ground between 1988 and 1996 and confirmatory sampling was

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			performed under the requirements of Suffolk County Sanitary Code Article 12. Therefore, the closure work already completed is the final action.
24	Page 29 Table 4-1	minor typos - misspelled 'temporary' and 'operating'	Comment noted.
25	Page 31, Page 32, OU6	"The updated data indicate that system modifications will be required to reduce the cleanup timeframe and to address newly observed deep contamination." Will the proposed system modifications result in an ESD or RODA?	No. The change will only involve the installation of an additional extraction well(s) and monitoring wells. This is an optimization to the existing treatment system to ensure the cleanup goals will be met. Similar to previous changes to other treatment systems over the last 20 years, this will be documented in a design modification report and submitted to USEPA.
26	Page 33, Bullet Five	Stormwater is misspelled.	Comment noted (page 31, bullet five).
27	Page 33, HFBR	The document states that the ROD requires the actions to be completed by 2020; however, an extension was granted, which should be clarified.	Although the extension was identified in a following bullet, future reports will reference the extension for clarification.
28	Page 36	The text indicates issues associated with access agreements for the six groundwater treatment systems off of BNL property. It would be helpful to provide information	Section 4.2, page 27 provides a brief description of off-site property access required to perform

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		regarding how this will be addressed or where additional information on this issue can be found in the FYR. Additionally, there is confusion as to the number of agreements. There appears to be a seventh agreement with a conveyance provision. What is the significance of this?	remediation activities. There are seven access agreements. Two of the seven agreements have expired. An agreement with the County for access to a portion of the Peconic River expired December 2021 and will not be renewed. The other agreement that expired is for the Industrial Park Treatment System and the private property owner is not being reasonable/cooperative with their requested terms for access. BSA legal counsel is working with the Town of Brookhaven and property owner on an alternative agreement that might benefit all parties.
29	Page 44, Landfills, first paragraph	The text says "... There were no detections of soil gas in any ..." Which chemicals are being referred to? What is meant by soil gas in this section?	The soil gas being referred to is methane and hydrogen sulfide from landfill waste decomposition.
30	Page 52, Operable Unit VI	The document notes that two permanent monitoring wells were installed in October 2020. Are data available for the monitoring wells so far?	The wells were first sampled in December 2020 and detected EDB exceeding the drinking water standard. The data was discussed in the 2020 Groundwater Status Report. These wells are sampled quarterly.
31	Section 7: IRIS Updates	Suggest including language to indicate that future updates to the IRIS files and associated toxicity values will be evaluated in the next FYR. Also provide a link to the	The next Five Year Review will continue to evaluate updates to the IRIS files and associated toxicity

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		section in Attachment 5 where updates to toxicity values were identified.	values. A link to the attached support document will also be provided.
32	Section 7: Changes in Exposure Pathways, Toxicity and Other Contaminant Characteristics, and Risk Assessment Methods	It would be helpful in this section to refer the reader to Attachment 5, page 249 for more detailed information on specific changes in the default exposure assumptions that do not significantly change the remediation levels.	Agreed, the attachment will be referenced in future Five Year Reviews.
33	Page 60, OU I	Ecological considerations should be included in Question B.	Future Reviews will consider ecological impacts.
34	Page 74, OU V	The text references a general advisory against fish consumption for New York State Waters. The text on page 249 includes more specific language regarding surveys and the exposure assumptions. It is important to consider if there are any site-specific surveys in this area that may reflect local consumption patterns, and this information needs to be included in the text. In addition, the size of the fish found in this area appear to be small based on the description of the ecological sampling results. Information regarding the size of the fish found during the ecological sampling could be discussed as an uncertainty and be included in the text.	BNL will reach out to NYSDEC Fisheries and obtain data of any local fish consumption patterns identified for this area of the Peconic River. The size, number and species makeup of fish collected in the future will also be discussed in upcoming Five Year Reviews.
35	Page 79, Operable Unit VIII	EPA feels this level of PFAS and 1,4-dioxane discussion is unnecessary for the document, given that there are no remedies associated with these chemicals. Since there is no remedy yet, mentioning it as a concern elsewhere in the document is sufficient.	Comment noted. If there is no final remedy (i.e., ROD) by 2026, there will be no discussion in this section of that Five Year Review Report.

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36	Page 81	there is a definitive statement that PFAS are not volatile. This is not the case for all PFAS, so suggest it be revised to say, "PFOA and PFOS, the primary PFAS detected in groundwater, are not considered volatile."	Future reference to not being volatile will be specific to PFOS and PFOA.
37	Page 83, BGRR Implementation of Land Use and Institutional Controls and Other Measures	Is there a plan to transfer the BGRR property? Check with EPA as to regulations when this becomes a reality.	There are no plans to transfer the BGRR property.
38	Page 84, Soil Cleanup levels for radionuclides	EPA requests that BNL conduct a calculation using the PRG calculator vs. RESRAD, so that we have the analysis on record.	We will evaluate the need and effort required to perform the calculations, then consider it for inclusion in the next Five Year Review.
39	Page 95	While the need to carry out the TCRA for PFAS source areas is listed as an issue/recommendation, there is no mention of the need to complete the RI/FS, and ROD(s). Please include as an issue the need to complete the investigation of PFAS, with the recommendation being to complete the RI/FS and any RODs, as needed. Include a timeline for these projects.	We agree that performing the RI/FS and subsequent ROD for OU VIII is a significant activity required under the BNL IAG. Since 2018, BNL has conducted significant characterization of the extent of PFAS and 1,4-dioxane in groundwater. These data will be incorporated into the RI Work Plan and will help reduce the remaining scope of the RI. In November 2021, BNL submitted the annual IAG Schedules Update to the regulators, with a target date for submittal of the OU VIII RI Work Plan.

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40	Page 96, OUIII	EPA considers this short-term protective since exposure pathways are being controlled.	Comment noted.
41	Page 97, OU VI	Is continued monitoring needed to verify protectiveness?	Yes, future Reviews will add the following bullet: Long-term protectiveness of the remedies will be verified by continuing to monitor the movement and remediation of the plume.
42	Page 98	The comprehensive protectiveness statement presented on page 98 should be removed. These are only needed for construction complete sites. The OU by OU protectiveness statements and analysis prior to the statement is sufficient for this site.	Comment noted. The change will be reflected in future Reviews.
43	Page 99, Next Review	The trigger for this Five Year Review is the date on which EPA signed the last protectiveness letter (8/9/2016) and the next one would be five years from the date we issue our protectiveness letter (8/6/2021), not necessarily when the FYR is issued.	Noted. See response to general comment 2.
44	Risk Information in Attachment 5	It would be helpful to link the discussions in the text specifically to the section in Attachment 5 where the information can be found to assist the reader. An introductory statement regarding Attachment 5 would be helpful.	Agreed. A link will be added in future Reviews as well as a statement.

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NYSDEC Letter from B. Jankauskas to R. Gordon, dated October 26, 2021.			
The New York State Department of Environmental Conservation and New York State Department of Health (Departments) have reviewed the Brookhaven National Laboratory (BNL) responses to comments on the 5-Year Review Report. The responses are acceptable except the response to Comment 4, which requires further discussion.			
1	NA	Comment 4 was directed at the current private well monitoring program and the expanded private well sampling event that covered the area defined by Suffolk County Department of Health Services (SCDHS), which includes some new private wells within the private well hook-up area that are not part of the current monitoring program. The 5 Year Review Report clearly identified the private wells within the monitoring program on page 11. The subsequent discussions regarding private well sampling within the 5 Year Review Report can be seen as misleading since it discusses remaining known homeowners still using private wells in the hook-up area or BNL continue to offer homeowners not connected to public water free annual testing, which suggests that the newly identified private wells within the hook-up area are included in the monitoring program. The BNL response indicated that future sampling events will be focused to the initial set of private wells that declined hook-up to public water. This response clearly identifies the private wells in the monitoring program, but please make sure that future reports clearly present the private wells being discussed to eliminate any confusion. The BNL response goes on to provide a general assessment of the new private wells that were sampled within the hook-up area but does not provide any assessment for the private wells located outside the hook-up area.	Future Five Year Reviews will include a general discussion of those properties still on private wells that declined DOE's original public water hook-up offer in 1996 to 1998 and are included in the routine free annual testing program as identified in the OU III ROD. Any potential additional non-routine private well testing performed within the public water hook-up area during future Five Year Review data review timeframes will also be summarized for clarity. As you are aware, the four newly identified properties by NYSDEC and SCDHS (18, 19, 20, and 32) were included as part of the Suffolk County and BSA Technical Services Agreement (TSA) private well testing program (May 1, 2019 through August 14, 2020). Of these four properties, only one property owner agreed to have their private well sampled by SCDHS (18).

		BNL's response to Comment 4 indicated that only the initial set of private wells that declined hook-up to public water will be part of the routine monitoring program. The Departments are requesting BNL to reconsider this response and include four newly identified private wells, identified as 18, 19,20, and 32, as part of the annual sampling program. The four private wells are within the defined hook-up area and located along North Street, which is just south of the site. One of the private wells was recently sampled by SCDHS, but the other three were not. On October 20,2000, SCDHS provided a comment on the Operable Unit III Draft Comprehensive Remedial Design Work Plan that pertained to the potential future need for sampling private wells along North Street as SCDHS will not be in a position to prevent development of these lots or require the hook-up to public water if no water mains are available. On April 24, 2001, BNL response recognized this possibility and agreed that future private well monitoring by BNL would be necessary along North Street. The Departments are requesting BNL to follow through with this commitment.	PFAS and 1,4-dioxane were not detected in the sample. The other three properties were not sampled by SCDHS during the TSA despite multiple attempts to reach out to the property owners and as a result, the presence of private supply wells at these properties or whether the property owners declined the offer has not been verified. As a result, BSA and DOE believe the intent of the 2001 response to comments in the OU III RD Work Plan has been met and have no intention of adding these or any other properties in the hookup area to the routine annual testing program.
2	NA	SCDHS installed ten vertical profile points to evaluate groundwater conditions down-gradient of BNL and off-site remedial recharge areas and also within supply well capture zones. The vertical profile points were initially installed to evaluate 1,4 dioxane impacts from the site, which SCDHS intended to perform the analysis at their laboratory. Prior to sampling the vertical profile points, PFAS contamination from BNL operations was identified within the environment. SCDHS has indicated that they would like to include PFAS as part of the vertical profiles as minimal effort would be needed to obtain the samples. Unfortunately, SCDHS requires support to analyze samples for PFAS. SCDHS and BNL have worked together in the	BNL has considered the request and agrees to support the SCDHS investigation by funding the PFAS laboratory analysis for three of the five vertical profile locations identified (1, 3 and 5). Based on the data obtained during previous characterization efforts performed by BNL and the location of these three vertical profiles, we believe the data would be beneficial to the planned OU VIII Remedial Investigation work. A brief scope

		past to obtain information regarding site impacts at private wells. This would appear to be another situation where information can be obtained quickly to help understand site conditions and potential impacts from BNL at a limited cost to BNL. The Departments request that BNL consider supporting SCDHS investigation by funding the PFAS laboratory analysis for a minimum of five of these locations as this information can be helpful for developing the Remedial Investigation Work Plan for Operable Unit VIII. The locations of five priority vertical profile points are identified as 1 through 5 on the enclosed figure. The Departments also feel this will be appreciated by the general public and Community Advisory Council as field work for Operable Unit VIII is anticipated to take significant time as the draft work plan has not been prepared.	of work for this collaborative effort will be required prior to BNL formal approval.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 2
290 BROADWAY

NEW YORK, NY 10007-1866

August 6, 2021

Mr. Robert P. Gordon
Site Manager
U.S. Department of Energy
53 Bell Ave., Building 464
Upton, NY 11973-5000

Re: CERCLA Five-Year Review 2021
Brookhaven National Laboratory, Upton, New York

Dear Mr. Gordon:

This letter is in response to the Fourth *Five-Year Review Report* for the Brookhaven National Laboratory Superfund Site located in Upton, New York, submitted for EPA review and concurrence on June 1, 2021. The Five-Year Review was prepared to fulfill the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Section 121 (c). Pursuant to 40 CFR 300.430(f)(4)(ii), reviews no less often than every five years are required of any remedial actions that have been selected in Records of Decision which do not allow for unlimited use and unrestricted exposure (UU/UE).

The Draft Five-Year Review Report has been reviewed by the EPA Region 2 technical team and by EPA Headquarters. Our review was conducted in accordance with EPA's "Comprehensive Five-Year Review Guidance" (OSWER Directive No. 9355.7-03B-P) and other relevant guidance. This letter is to document the overall protectiveness for the site by Operable Unit (OU). Additional comments will be sent under separate cover.

EPA has made the following determinations for the following OUs:

- Operable Unit I – Protective
- Operable Unit III – Short-Term Protective
- Operable Unit IV – Protective
- Operable Unit V – Short-Term Protective
- Operable Unit VI – Short-Term Protective
- Brookhaven Graphite Research Reactor (BGRR) – Protective
- g-2/Brookhaven Linac Isotope Producer/Underground Storage Tanks (g2/BLIP/USTs) – Protective
- High Flux Beam Reactor (HFBR) – Short-Term Protective

OU II does not have its own protectiveness statement because the remedial action for this OU is covered under the OU I, OU III, and g2/BLIP/USTs RODs. Because construction is not complete, a comprehensive protectiveness statement for the site is not appropriate at this time.

BNL is continuing to investigate PFAS and 1,4-dioxane under a new operable unit (OU VIII) and BNL has taken steps to address PFAS under a removal action. However, EPA is not aware of any remedy selected in a ROD for BNL addressing PFAS or 1,4 dioxane. It is EPA's understanding that a remedial investigation (RI) for these contaminants is planned, and that decisions about remediation will be made at a future date as OU VIII proceeds through the CERCLA process. Therefore, the presence of these contaminants is not currently affecting the protectiveness of the selected remedies at the OUs or areas identified above. EPA will continue to evaluate results from this investigation process and work with BNL to ensure that any additional remedial actions are taken to ensure continued protection of public health and the environment.

While EPA will be submitting further comments on the document, the comments submitted will not impact the protectiveness of the remedies in place and can be coordinated between the respective project managers at EPA and BNL.

EPA has evaluated the Superfund Performance Measures for BNL and has determined the status is as follows:

<u>Environmental Indicators</u>

- Human Exposure Under Control
- Groundwater Migration Not Under Control

The statutory deadline for completing the next Five-Year Review for BNL will be August 6, 2026.

If you have any questions, please contact me at (212) 637-4447 or have your staff contact Sharon Hartzell, EPA Project Manager, at (212) 637-4132.

Sincerely,

Pat Evangelista, Director
Superfund and Emergency Management Division

cc: Brian Jankauskas - NYDEC
Douglas Pocze, EPA FFS
Sharon Hartzell, EPA FFS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau A
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August 4, 2021

Mr. Robert P. Gordon
Site Manager
U.S. Department of Energy
53 Bell Ave, Building 464
Upton, NY 11973-5000

Re: Brookhaven National Laboratory
Site ID: 152009

Dear Mr. Gordon:

The New York State Department of Environmental Conservation and New York State Department of Health (Departments) have reviewed the 5-Year Review Report, dated June 1, 2021. The Departments provide the enclosed comments. If you have any questions, please contact me at brian.jankauskas@dec.ny.gov .

Regards,

Brian Jankauskas

Brian Jankauskas, P.E.
Project Manager
Remedial Bureau A, Section C

ec: J. Swartwout, R. Quail, P. Armani, DEC
S. Rushford, D. O'Hehir, C. Costello, M. Soucie, DOH
D. Pocze, S. Hartzell, EPA
A. Rapiejko, A. Juchatz-Camanzo, SCDHS
W. Dorsch, B. Howe, J. Remien, S. Coleman, A. Engel
G. Granzen

1. Glossary – Include milestone, which is presented in various parts of the document. Most milestones are anticipated to be completed in the future, but some have past (e.g. ES stack and building 650 and Table 5-1 WSB and deeds). Table 9-1 has identified future milestones to be achieved.

2. Glossary – Operable Unit definition needs to be updated to include total number of Operable Units.

3. Operable Unit Numbers – On May 11, 2021, BNL responded to a request to adjust Operable Unit numbers so they are the same with EPA and the State. At this time EPA has revised their Operable Unit numbers. This document should utilize the updated Operable Unit numbers.

4. Private Wells – This document discusses the private wells that are sampled as part of the current monitoring program in multiple locations (e.g. pages 11, 14, 26, 63, 74, 77, 79). The discussion provided appears to imply that BNL is sampling the only private wells present within the area. Based on the recent private well sampling activities conducted near BNL, there are more private wells in the hook-up area than these private wells. This discussion should be revised for clarity and a discussion regarding some of the findings from the expanded private wells sampling should be included to indicate that this exposure pathway was evaluated particularly for 1,4 dioxane, which has been detected in the off-site groundwater and passes through the treatment systems.

5. Page 26, second paragraph – Indicates that 26 extraction wells are in operation, but Figure 4-1 shows 23 extraction wells. Verify/revise accordingly.

6. Page 32, OUV – Two localized areas of contamination remain in the Peconic River (PR-SS-38 and PR-SS-10) that contain mercury above the sediment cleanup goal indicated in the Record of Decision but was determined to be acceptable. Recently the DEC agreed that water and sediment sampling is no longer necessary, but continued fish sampling is necessary as fish concentrations have not reduced to acceptable levels.

7. Page 47, WSB – Verify reference to 111-15 as Figure 6-6 shows results for 103-15, but the results are greater than five parts per billion for TVOC.

8. Page 49, BGRR – Indicates new well at leading edge of BRGG SR-90 plume was installed in September 2020 but is not shown on Figure 6-14. Update Figure 6-14 to show new monitoring well.

9. Page 75, OUV Monitoring – Should include fish monitoring/surveillance activities as these were performed.

10. Section 10, OUII/OUVII – Suggest including a protectiveness statement for these OUs even if the activity was covered under a separate Record of Decision.

11. Table 9-1 – Include fish monitoring as discussed on Page 75 (Monitoring Optimization).

12. Figure 4-1 – Verify operational status of Industrial Park extraction wells as each extraction well is in standby conditions but identified as operating.

COUNTY OF SUFFOLK

STEVEN BELLONE
SUFFOLK COUNTY EXECUTIVE

DEPARTMENT OF HEALTH SERVICES

GREGSON H. PIGOTT, MD, MPH
Commissioner

August 20, 2021

Mr. Robert P. Gordon
Site Manager
U.S. Department of Energy
53 Bell Ave, Building 464
Upton, NY 11973-5000

RE: Brookhaven National Laboratory Five-Year Review Report.

Dear Mr. Gordon,

I have reviewed the Brookhaven National Laboratory Five-Year Review Report and offer the following comments:

- Operable Unit VIII- Recent sampling has shown MCL exceedances of Per- and Polyfluoroalkyl Substances (PFAS) and 1-4 Dioxane. In light of this the Suffolk County Department of Health Services (SCDHS) recommends a comprehensive sampling plan in order to adequately characterize the extent of contamination. This comprehensive plan will allow for better protection of human health and the environment.

- Private Well Program- Recent sampling activities have highlighted additional private wells with in the BNL hook-up area. SCDHS recommends the private well program narrative be revised and talk about the newly identified private wells and any possible exposure these new properties might encounter.

If you have any questions, please feel free to contact me at (631) 852-5773.

Sincerely,

Jonathan Wanlass
Hydrogeologist
Office of Water Resources

Ec: B. Jankauskas, – NYSDEC
C. Bethoney - NYSDOH
S. Hartzell - EPA
A. Rapiejko – SCDHS

Brookhaven National Laboratory Five Year Review Comments

October 5, 2021 [Received October 7th via email]

EPA issued our Protectiveness Statement on August 6th and are following up with these comments on the document. None of the comments should impact the overall protectiveness statements as identified in our Protectiveness Letter and are intended for clarification, to be addressed in an addendum to the Five Year Review document. As noted in our protectiveness letter, the remedies deemed protective are effective for the contaminants in the ROD, but there are new contaminants present (PFAS, 1,4-dioxane) that are being addressed under a different administrative unit (OU VIII). The presence of the new contaminants does not affect short term protectiveness because of the presence of LUCs are preventing human contact. EPA will continue to evaluate protectiveness as these new contaminants have the potential to impact groundwater within other OUs.

General Comments

Protectiveness Statements: EPA refers BNL to our guidance on protectiveness statements, *Clarifying the Use of Protectiveness Determinations for Comprehensive Environmental Response, Compensation and Liability Act Five-Year Reviews (OSWER 9200.2-111)*. "Expected to be protective" is usually reserved for sites that are in construction. If they are not in construction, then protective or short-term protective are typically used when there are not significant issues. Sites where institutional controls are not in place, nature and extent has not been defined or additional remedial work needs to happen in the future should generally be considered protective in the short term. EPA considers that because the exposure pathways have been cut off the remedies are protective in the short term. Furthermore, as continued monitoring demonstrates that the remedial goals will be achieved and a remedy gets implemented for OUVIII (PFAS and 1,4-dioxane) it will be protective in the long term.

A comprehensive protectiveness statement is not appropriate at this time, because the entire site is not construction complete.

Due Date: The trigger for this Five Year Review is the date on which EPA signed the last protectiveness letter (8/9/2016) and the next one would be five years from the date we issue our protectiveness letter (8/6/2021), not necessarily when the FYR is issued.

Receptors of Concern: In general, the document does not describe the exposures to specific receptors of concern e.g., indoor worker, outdoor worker, future resident, off-site resident, etc. It would be helpful to include some information on the receptors and how exposures to these individuals were considered in the assessment. A table identifying the specific OU and the receptors would be helpful.

Lead: The document cites the Regional Screening Levels as the basis for a lead level in soil of 400 mg/kg (page 70, and other descriptions on pages 73 and 89 and memo description on page 248) EPA is currently updating the soil lead level as indicated in the document. It is

recommended that the text remove reference to the Regional Screening Levels since these are not regulatory levels. EPA recommends including the following language in Question B regarding lead that outlines current evaluations of lead at Superfund sites and recommends language regarding updates in the next 5 Year review be maintained in the text. A link to the language in Attachment 5 regarding the scientific basis for lead would also be helpful.

> **New Language**: At the time of the ROD, risks associated with exposure to lead in soils were evaluated using a target blood lead level (BLL) of 10 micrograms per deciliter (µg/dL). However, recent toxicological evidence suggests that adverse health effects are associated with lower blood lead levels. To achieve a lead risk reduction goal consistent with recent toxicological findings, EPA Region 2 currently evaluates lead using a target blood lead level of 5 µg/dL, which equates to 200 mg/kg screening level using standard default inputs to the Integrated Exposure Uptake Biokinetic (IEUBK) model to assess exposures to young children. For sites where lead was a COC, there should be a discussion of how the cleanup is still protective considering these lower values. Additionally, for risk evaluations planned for sites to remove LUCs, an evaluation of the data will be needed to ensure that lead would not pose and unacceptable risk if LUCs were removed. Lead will be re-evaluated in future FYRs based on updated toxicity information.

PFAS: OU VIII should not be included in the technical assessment (Qs A&B). There is no ROD or remedy to evaluate for protectiveness. It can be included in future FYRs once the NTCRA has been implemented. However, the other portions of the document that address PFAS are well constructed. EPA suggests more information about impacts beyond BNL property line so it is clear that off-site residential wells are not impacted.

1,4-Dioxane: For 1,4-dioxane, please include a brief description of what might be needed to complete the investigation for this contaminant.

Radiological: Has the Region done Radiological consultations with FFRRO, OSRTI or internal to the Region on this site?

Restoring the aquifer to beneficial use: This should be noted as an RAO in the Decision Documents, but achieving the cleanup goals that were appropriately established for each OU will achieve this.

OU-1 plume: Has the vapor intrusion pathway been investigated (or is there a reason why it would not be of concern) at this operable unit?

OU-3 plume: When the system modification occurred to address other contaminants, was an ESD or RODA completed for the site. Was VI considered at this OU?

Peconic River Fish Tissue: Sediment and surface water samples are below the cleanup values, but the fish tissue could not be sampled due to a low amount of fish collected to perform the analysis. Does BNL plan to attempt fish tissue sampling in the future?

Ecological Risk: Have tiger salamanders been seen in the Wooded Wetlands ore elsewhere on the BNL site?

Specific Comments

Page ii: The document states that sitewide protectiveness must be reserved until all HFBR work is complete. However, short term protective status may be achievable prior to that.

Page iii, OU VIII PFAS: EPA notes that no one on or offsite has been found to be drinking water above the 70ppt level, so protectiveness is not affected for the present.

Section 1 – Introduction: Suggestion to link to EPA's webpage regarding the site (https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.docdata&id=0202841)

Section 2 –Table 2-1: It would be helpful to provide a link to the general homepage for BNL where documents are available listed above.

Page 8, Table 2-2: For TCRA, it is clearer to say "In Design" than "in Remedial Design" since it is not technically a remediation

Page 9, Table 2-2: Stack is almost complete, not complete

Page 10, Sect. 3.3: The document may benefit from including a discussion of BNL's location relative to the Pine Barrens or discussion of natural vegetation types present at BNL

Page 11, LUCMP: Has there been a LUCMP update since 2018? EPA received a LUIC evaluation document in February 2021

Page 13, OUI Groundwater: Clarify whether VOC contamination has migrated beyond the OU boundary or the BNL boundary

Page 15: The summary under OU VIII indicates that the source of PFAS is AFFF use. Is this the only source? Were other potential sources identified and evaluated? Please add a brief description of the scope of the PFAS investigation and the justification. In addition, if there are potentially other sources of PFAS, please comment, or explain prioritization decisions leading to the focus on AFFF.

Page 26 – USTs: Suggest providing additional language regarding why no additional remedial actions are needed for the USTSs.

Page 29 Table 4-1: minor typos - misspelled 'temporary' and 'operating'

Page 31, Page 32, OU6: "The updated data indicate that system modifications will be required to reduce the cleanup timeframe and to address newly observed deep contamination." Will the proposed system modifications result in an ESD or RODA?

Page 33, Bullet Five: Stormwater is misspelled

Page 33, HFBR: The document states that the ROD requires the actions to be completed by 2020; however, an extension was granted, which should be clarified.

Page 36: The text indicates issues associated with access agreements for the six groundwater treatment systems off of BNL property. It would be helpful to provide information regarding how this will be addressed or where additional information on this issue can be found in the FYR. Additionally, there is confusion as to the number of agreements. There appears to be a seventh agreement with a conveyance provision. What is the significance of this?

Page 44, Landfills, first paragraph: The text says "... There were no detections of soil gas in any ..." Which chemicals are being referred to? What is meant by soil gas in this section?

Page 52, Operable Unit VI: The document notes that two permanent monitoring wells were installed in October 2020. Are data available for the monitoring wells so far?

Section 7: IRIS Updates: Suggest including language to indicate that future updates to the IRIS files and associated toxicity values will be evaluated in the next FYR. Also provide a link to the section in Attachment 5 where updates to toxicity values were identified.

Section 7: Changes in Exposure Pathways, Toxicity and Other Contaminant Characteristics, and Risk Assessment Methods: It would be helpful in this section to refer the reader to Attachment 5, page 249 for more detailed information on specific changes in the default exposure assumptions that do not significantly change the remediation levels.

Page 60, OU I: Ecological considerations should be included in Question B

Page 74, OU V: The text references a general advisory against fish consumption for New York State Waters. The text on page 249 includes more specific language regarding surveys and the exposure assumptions. It is important to consider if there are any site-specific surveys in this area the may reflect local consumption patterns, and this information needs to be included in the text. In addition, the size of the fish found in this area appear to be small based on the description of the ecological sampling results. Information regarding the size of the fish found during the ecological sampling could be discussed as an uncertainty and be included in the text.

Page 79, Operable Unit VIII: EPA feels this level of PFAS and 1,4-dioxane discussion is unnecessary for the document, given that there are no remedies associated with these chemicals. Since there is no remedy yet, mentioning it as a concern elsewhere in the document is sufficient.

Page 81: there is a definitive statement that PFAS are not volatile. This is not the case for all PFAS, so suggest it be revised to say, “PFOA and PFOS, the primary PFAS detected in groundwater, are not considered volatile.”

Page 83, BGRR Implementation of Land Use and Institutional Controls and Other Measures: Is there a plan to transfer the BGRR property? Check with EPA as to regulations when this becomes a reality.

Page 84, Soil Cleanup levels for radionuclides: EPA requests that BNL conduct a calculation using the PRG calculator vs. RESRAD, so that we have the analysis on record.

Page 95: While the need to carry out the TCRA for PFAS source areas is listed as an issue/recommendation, there is no mention of the need to complete the RI/FS, and ROD(s). Please include as an issue the need to complete the investigation of PFAS, with the recommendation being to complete the RI/FS and any RODs, as needed. Include a timeline for these projects.

Page 96, OUIII: EPA considers this short-term protective since exposure pathways are being controlled.

Page 97, OU VI: Is continued monitoring needed to verify protectiveness?

Page 98: The comprehensive protectiveness statement presented on page 98 should be removed. These are only needed for construction complete sites. The OU by OU protectiveness statements and analysis prior to the statement is sufficient for this site.

Page 99, Next Review: The trigger for this Five Year Review is the date on which EPA signed the last protectiveness letter (8/9/2016) and the next one would be five years from the date we issue our protectiveness letter (8/6/2021), not necessarily when the FYR is issued.

Risk Information in Attachment 5: It would be helpful to link the discussions in the text specifically to the section in Attachment 5 where the information can be found to assist the reader. An introductory statement regarding Attachment 5 would be helpful.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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October 26, 2021

Mr. Robert P. Gordon
Site Manager
U.S. Department of Energy
53 Bell Ave, Building 464
Upton, NY 11973-5000

Re: Brookhaven National Laboratory
Site ID: 152009

Dear Mr. Gordon:

The New York State Department of Environmental Conservation and New York State Department of Health (Departments) have reviewed the Brookhaven National Laboratory (BNL) responses to comments on the 5-Year Review Report. The responses are acceptable except the response to Comment 4, which requires further discussion. Comment 4 was directed at the current private well monitoring program and the expanded private well sampling event that covered the area defined by Suffolk County Department of Health Services (SCDHS), which includes some new private wells within the private well hook-up area that are not part of the current monitoring program. The 5 Year Review Report clearly identified the private wells within the monitoring program on page 11. The subsequent discussions regarding private well sampling within the 5 Year Review Report can be seen as misleading since it discusses remaining known homeowners still using private wells in the hook-up area or BNL continues to offer homeowners not connected to public water free annual testing, which suggests that the newly identified private wells within the hook-up area are included in the monitoring program. The BNL response indicated that future sampling events will be focused to the initial set of private wells that declined hook-up to public water. This response clearly identifies the private wells in the monitoring program, but please make sure that future reports clearly present the private wells being discussed to eliminate any confusion. The BNL response goes on to provide a general assessment of the new private wells that were sampled within the hook-up area but does not provide any assessment for the private wells located outside the hook-up area.

BNL's response to Comment 4 indicated that only the initial set of private wells that declined hook-up to public water will be part of the routine monitoring program. The Departments are requesting BNL to reconsider this response and include four newly identified private wells, identified as 18, 19, 20, and 32, as part of the annual sampling program. The four private wells are within the defined hook-up area and located along North Street, which is just south of the site. One of the private wells was recently sampled by SCDHS, but the other three were not. On October 20, 2000,

SCDHS provided a comment on the Operable Unit III Draft Comprehensive Remedial Design Work Plan that pertained to the potential future need for sampling private wells along North Street as SCDHS will not be in a position to prevent development of these lots or require the hook-up to public water if no water mains are available. On April 24, 2001, BNL response recognized this possibility and agreed that future private well monitoring by BNL would be necessary along North Street. The Departments are requesting BNL to follow through with this commitment.

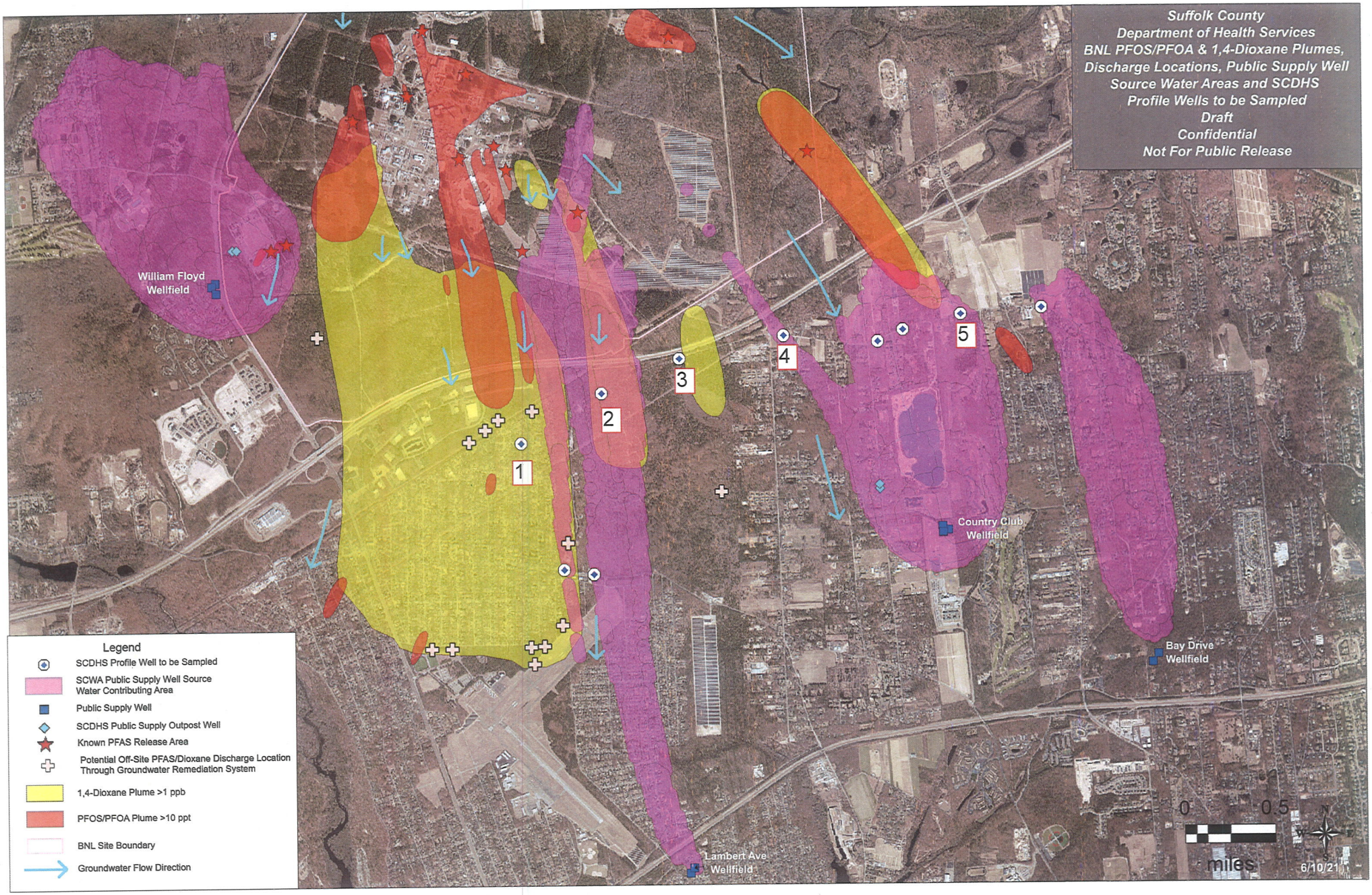
SCDHS installed ten vertical profile points to evaluate groundwater conditions down-gradient of BNL and off-site remedial recharge areas and also within supply well capture zones. The vertical profile points were initial installed to evaluate 1,4 dioxane impacts from the site, which SCDHS intended to perform the analysis at their laboratory. Prior to sampling the vertical profile points, PFAS contamination from BNL operations was identified within the environment. SCDHS has indicated that they would like to include PFAS as part of the vertical profiles as minimal effort would be needed to obtain the samples. Unfortunately, SCDHS requires support to analyze samples for PFAS. SCDHS and BNL have worked together in the past to obtain information regarding site impacts at private wells. This would appear to be another situation where information can be obtained quickly to help understand site conditions and potential impacts from BNL at a limited cost to BNL. The Departments request that BNL consider supporting SCDHS investigation by funding the PFAS laboratory analysis for a minimum of five of these locations as this information can be helpful for developing the Remedial Investigation Work Plan for Operable Unit VIII. The locations of five priority vertical profile points are identified as 1 through 5 on the enclosed figure. The Departments also feel this will be appreciated by the general public and Community Advisory Council as field work for Operable Unit VIII is anticipated to take significant time as the draft work plan has not been prepared.

If you have any questions regarding the requested private well sampling or vertical profile point sampling activities, please contact me at 518-402-9626 or brian.jankauskas@dec.ny.gov to discuss further.

Regards,

Brian Jankauskas, P.E.
Project Manager
Remedial Bureau A, Section C

ec: J. Swartwout, P. Armani, DEC
S. Rushford, C. Bethoney, DOH
D. Pocze, S. Hartzell, EPA
A. Rapiejko, A. Juchatz-Camanzo, J. Wanlass, SCDHS
W. Dorsch, B. Howe, J. Remien, S. Coleman, A. Engel, M. McCann, J. Carter
G. Olson, J. Serra, A. Troutman, T. Green, D Paquette, V. Racaniello
G. Granzen


Suffolk County
Department of Health Services
BNL PFOS/PFOA & 1,4-Dioxane Plumes,
Discharge Locations, Public Supply Well
Source Water Areas and SCDHS
Profile Wells to be Sampled
Draft
Confidential
Not For Public Release
William Floyd
Wellfield
Country Club
Wellfield
Bay Drive
Wellfield
Lambert Ave
Wellfield
1
2
3
4
5
Legend
SCDHS Profile Well to be Sampled
SCWA Public Supply Well Source
Water Contributing Area
Public Supply Well
SCDHS Public Supply Outpost Well
Known PFAS Release Area
Potential Off-Site PFAS/Dioxane Discharge Location
Through Groundwater Remediation System
1,4-Dioxane Plume >1 ppb
PFOS/PFOA Plume >10 ppt
BNL Site Boundary
Groundwater Flow Direction
0
0.5
miles
N
W
E
S
6/10/21